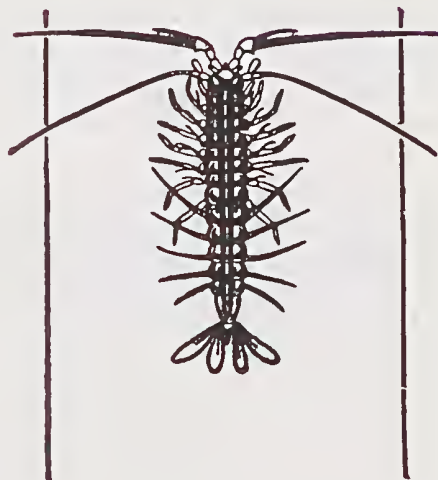


RECORDS OF THE
QUEEN VICTORIA MUSEUM
LAUNCESTON



Edited by
C. B. TASSELL
Director of the Museum

THE COMMON WOMBAT *VOMBATUS URSINUS* (SHAW, 1800) IN NORTHERN TASMANIA — PART 2. THE BASS STRAIT POPULATION, *V. URSINUS URSINUS*

R. H. Green & J. L. Rainbird
Queen Victoria Museum and Art Gallery,
Launceston

Manuscript received 15/12/87

Manuscript published April/88

SUMMARY

At the beginning of the nineteenth century wombats were to be found on several Bass Strait islands. These were subsequently defined as a full species distinct from the populations on the Tasmanian and Australian mainlands. The Bass Strait wombat is now considered a subspecies and survives only on Flinders Island where its numbers are relatively high.

In August, 1982 one of us (R.H.G.) collected a series of 77 wombats, including pouch young, for the research collections of the Queen Victoria Museum. From this material, body weights and lengths confirmed the Flinders Island wombat to be the smallest of the three subspecies. The estimated age of the young indicated that births occurred seasonally, from January to August, whereas at "Bel Respiro", Northern Tasmania births were found to occur throughout the year. Pouch young developed teeth and pelage about one week earlier than the pouch young of Northern Tasmania.

INTRODUCTION

The Common Wombat *Vombatus ursinus* (Shaw, 1800) is widely distributed throughout South-Eastern Australia (McIlroy, 1983). Three subspecies are presently recognised, *V. ursinus ursinus* on Flinders Island, *V. ursinus tasmaniensis* on the Tasmanian mainland and *V. ursinus hirsutus* on the South-eastern Australian mainland (McIlroy, 1983, 116-122). At the time of early European settlement, wombats were found to occur on most of the larger islands in Bass Strait but they have since died out on all but Flinders Island. Spencer and Kershaw (1910) outlined the history and discovery of the wombat, and reviewed the early literature. They gave information on plastic features and tabulated data from cranial and post-cranial material of the various geographically isolated populations, upon which they defined four separate species, including the Hairy-nosed Wombat *Lasiorchinus latifrons*.

Hope (1969, p.95) refers to the early distribution of wombats on islands in Bass Strait, including Clarke Island (from where the wombat was first described), Cape Barren Island, Deal Island (subfossil only) and King Island and states that by 1910 the Bass Strait population survived only on Flinders Island.

Spencer and Kershaw (1910) gave references to some encounters with the King Island wombat at the beginning of the nineteenth century and that population is believed to have been exterminated by the early settlers. Very little King Island wombat material, other than skeletal remains from sand blows, is now available.

By courtesy of Dr. S. Smeenk, Curator of Mammals at the Royal Museum of Natural History, Leiden, Netherlands we have been informed of the existence of a display mount and associated skull of a wombat, stated to be from King Island, held in the Royal Museum, Leiden. Dr. Smeenk has kindly provided us with some photocopies from their old catalogues of mammal and bird material which included the following entries:

- 1) Tome ix *Catalogue Osteologique des Mammiferes*. 1887:307. *Phascolumys wombat* Peron et Lesueur. b. Crane dun individu adulte monte. Tasmanie, ile de King. Par M. Leadbeater. Tres incomplet.
- 2) Tome xiii *Catalogue Systematique des Mammiferes*. 1888:227. *Phascolumys wombat* Peron et Lesueur. a. Individu adulte monte. Tasmanie, ile de King. Par M. Leadbeater (Cr. b. du Cat. Ost).

The existence of this mount and associated skull appears to have been previously unrecorded in Australian literature and may in fact be the only such King Island specimen in existence. It was included in a collection of mammals and birds acquired by the Rijksmuseum in March 1828 from Mr. Leadbeater, a London dealer in natural history specimens.

Following the salvaging of a long series of wombats killed on "Bel Respiro", Kelso, in Northern Tasmania under a population reduction permit in 1979-1980 (Green and Rainbird, 1987), a decision was made to collect a series of similar material from Flinders Island where the wombat was also in high numbers. This was subsequently undertaken between 18 and 26 August 1982 when 43 adult and 34 subadult, juvenile and pouch young wombats were collected.

CLIMATE AND HABITAT

Flinders Island is the largest island in the Furneaux Group, Eastern Bass Strait (Figure 1). It is about 65km from North to South and 24km from East to West. The terrain is irregular, rising to about 750m with bare granite outcrops. The soil is mostly sandy and varies greatly in fertility. A detailed account of the soils, with a brief history, description of the physical environment and related comments is given by Dimmock (1957).

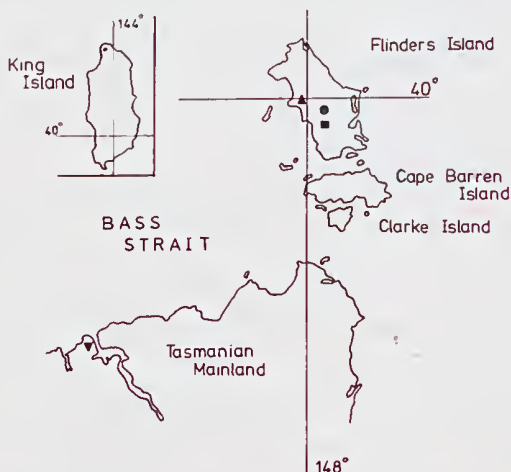


Figure 1.

North-eastern Tasmania and Bass Strait islands with the collecting sites indicated, "Bel Respiro", ▽ 'Yirriluka', • Darling Range, ■ 'Thule', ▲.

Since 1962 the mean annual rainfall at Whitemark has been 756mm, falling on 147 days. The coldest month was July with a mean minimum of 5.9°C, and the warmest month was February with a mean maximum of 22.6°C (pers. com. Bureau of Meteorology, Hobart).

Clearing and development for grazing has been patchy, occurring principally in central and western regions where areas have been ploughed and sown with introduced grasses and clovers. Such areas are generally bordered by native forest or scrub which may include honeysuckle *Banksia marginata*, she-oak *Casuarina* spp., grass-tree *Xanthorrhoea australis*, tea-tree *Leptospermum* spp. and *Melaleuca* spp., and cutting rush *Gahnia psittacorum*. A comprehensive list of the vegetation on the various soil types is given by Dimmock (1957) and some botanical material collected and listed by Green (1969) is housed in the herbarium of the Queen Victoria Museum.

BURROWS AND DIGS

Wombats had excavated deep burrows in the sandy soil, usually beneath the shelter of trees or scrub but also in areas of open pasture land where they were completely exposed. When the vegetation was short, the presence of these burrows was readily revealed by the mounds of sand scratched from the tunnels and deposited outside the entrance.

The wombats sheltered by day in their burrows and emerged at dusk to graze, often in close proximity to Brush Kangaroos *Macropus rufogriseus* and Pademelons *Thylogale billardieri* which were then in exceptionally high numbers.

McLaren (1966) recorded "wombat water holes" behind sand dunes in the South-east of the island and suggests they may have been dug by wombats to obtain drinking water; at the same time stating that he had not seen such features elsewhere.

It is interesting to note that similar wombat activity was found by Green (1984) while engaged on a fauna survey at Ordnance Point on the West Coast of Tasmania in the Autumn of 1981. These drinking holes were about 30cm deep and contained about a litre of brackish water. They were found in the floor of dry coastal lagoons and on the ocean beach just below the high tide line.

A somewhat similar drinking hole, being watered by a fresh water spring and utilised by swans as well as marsupials, was shown to one of us (R.H.G.) by D. M. Rhodes in September 1967. This too was in the upper reaches of the intertidal zone, in the sheltered waters of Cameron Inlet, on the East coast of Flinders Island.

MATERIAL AND METHODS

Most of the series of 77 wombats (Table 1) was collected on the pastoral properties "Thule", near Whitemark and "Yirriluka" near Emita, with some additional material from Darling Range (Figure 1) and salvages from road-kills. Collecting was undertaken at night by spotlighting from a station wagon and shooting with 0.22 Magnum rifle fitted with a telescopic sight. Processing was undertaken at a field base on "Thule" on the morning following collection, each animal being weighed, measured and processed in conformity with those collected on "Bel Respiro" in 1979-1980 (Green and Rainbird, 1987). Ectoparasites were collected and preserved in 70% alcohol for future study.

PROPORTIONS AND PELAGE

The wombats of the Bass Strait islands, including Flinders Island, were considered taxonomically distinct, mainly because of their slightly smaller size, relative to those from the Tasmanian mainland (intermediate) and the South-eastern Australian mainland (largest) (Spencer and Kershaw, 1910).

The body measurements of Flinders Island wombats recorded on the morning following collection and given in Table 2 support the conclusions of Spencer and Kershaw (1910) whose data were based mainly upon series of osteological material.

CLASS	MALES	FEMALES
P/Y	7 (54)	6 (46)
Juvenile	2 (40)	3 (60)
Sub-adult	6 (40)	9 (60)
Adult	21 (49)	22 (51)
TOTAL	36 (47)	40 (53)

TABLE 1. The number and percentage (in parenthesis) of males and females in each of four age classes from a total of 76 Flinders Island wombats.

CLASS	MALES				FEMALES			
	RANGE	MEAN	S.E.	NO.	RANGE	MEAN	S.E.	NO.
SUB-ADULT Total Length (cm)	66—73 (66—80)	70.8 (69.75)	2.3 (3.19)	6 (16)	63—78 (63—78)	68.4 (70.12)	4.5 (4.28)	9 (31)
Weight (kg)	10.0—14.9 (10.0—14.9)	13.13 (12.49)	1.34 (1.04)	6 (16)	10.0—14.9 (10.0—14.9)	12.3 (12.35)	1.62 (2.36)	9 (31)
ADULT Total Length (cm)	74—80 (73—90)	77.3 (81.26)	1.7 (3.37)	21 (96)	71—82 (72—89)	78.6 (80.8)	2.4 (3.32)	22 (148)
Weight (kg)	15.0—20.0 (15.0—26.6)	17.1 (19.5)	1.25 (2.18)	21 (96)	15.0—22.2 (15.0—26.2)	18.2 (19.55)	1.78 (2.34)	22 (148)

Table 2. Size range of 58 sub-adult and adult Flinders Island wombats, with the size range of equivalent age group of "Bel Respiro", Northern Tasmanian wombats (in parenthesis) to demonstrate the slightly smaller size of the Flinders Island subspecies.

In Table 2 body lengths and weights of 58 Flinders Island adult and sub-adult wombats are compared with those of 291 Tasmanian mainland wombats which confirms that the mean of the Flinders Island population is slightly smaller and lighter than that of the Tasmanian mainland wombats.

Pelage colour was found to vary considerably between individuals some being silvery-grey, others blackish-grey, dark brown or various shades between. Some wombats collected on "Thule" had pelage which was a distinctly dull red or a rusty shade, one old animal in particular being quite outstandingly so. This appeared to be a result of staining, possibly from conditions within the burrow, as when the pelage was thoroughly washed the intensity of redness was noticeably reduced.

Spencer and Kershaw (1910) also noted what was apparently the same redness in the smaller of two individuals; recording a "light russet-brown line along the back".

CLASS	AGE (weeks)	WEIGHT (kg)	NUMBER	
			FLINDERS ISLAND	N. TASMANIA
P/Y	0 — 37.9	0 — 2.9	14 (18)	58 (16)
Juvenile	38 — 64.9	3.0 — 9.9	5 (7)	21 (6)
Sub-adult	65 — 82.9	10.0 — 14.9	15 (19)	47 (13)
Adult	83+	15+	43 (56)	244 (65)

Table 3. The number and percentage (in parenthesis) in each of four age classes (after Green & Rainbird, 1987) from a total of 77 Flinders Island wombats with the "Bel Respiro", Northern Tasmania equivalent for comparison.

The numerical relativity of males and females in four age classes (Table 1) and percentage of the population in each age class (Table 3) did not differ significantly from that found by Green and Rainbird (1987) to occur at "Bel Respiro".

The ages of fifteen sub-adult, five juvenile and fourteen pouch young, were estimated from the growth and development charts produced by Green and Rainbird (1987) and approximate dates of births established. These have been plotted on a histogramme (Figure 2) which shows seasonal breeding and reveals that births occurred in the seven month period between mid January and the last week of August with no births occurring in the five months between the last week of August and the second week of January.

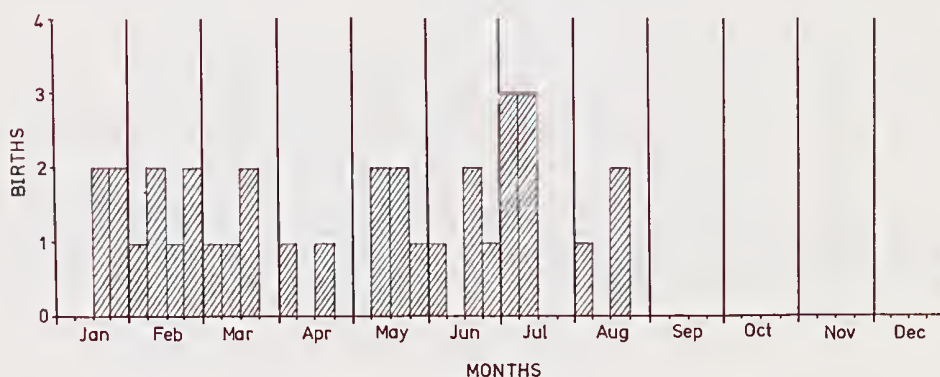


Figure 2.

The estimated birth times (after Green and Rainbird, 1987) of pouch young, juvenile and sub-adult wombats collected on Flinders Island.

This is in marked contrast to findings of Green and Rainbird (1987) for the "Bel Respiro" population where births were found to occur throughout the year, 48% of which occurred in the four month period from October to January. This was indeed surprising and most unexpected as the climate and habitat of both locations appeared similar. In the absence of further collecting and additional data no explanation is offered.

GROWTH AND PROPORTIONS OF POUCH YOUNG

Included in the present Flinders Island series were 35 wombats weighing up to 15kg. From the criteria of Green and Rainbird (1987) these comprised animals from one week old to 32 weeks old (born between mid January and the last week in August 1982) and 52 weeks old to 82 weeks old (born over the same period in 1981). No wombats were found which could have been born in the five month period between the last week of August 1981 and the second week of January 1982.

If young leave the pouch at about nine to ten months old, as concluded by Green and Rainbird (1987), then no young wombats would be found at that stage of development on Flinders Island from the end of May to mid October, that is, during the coldest months.

The sample included seven pouch young aged between ten weeks and 32 weeks (Table 4). These had a slightly greater head length and body weight than pouch young of a similar age in the "Bel Respiro", series described by Green and Rainbird (1987). This was not evident in very small pouch young, nor in sub-adults and adults in which the ratios were similar to those of "Bel Respiro" wombats. The ten to 32 week age group from Flinders Island also had a slightly earlier (about one week) development of features such as tooth eruption and vibrissae and had more body fat.

AGE (weeks)	WEIGHT (kg)	HEAD LENGTH (cm)
10	.058 (.054)	3.7 (3.4)
13.5	.07 (.09)	4.1 (4.1)
23	.45 (.295)	7.5 (6.5)
24.5	.55 (.45)	8.0 (7.2)
27.5	1.25 (.85)	9.5 (9.3)
28.5	1.2 (1.01)	9.5 (9.5)
31.5	1.8 (1.7)	11.0 (10.3)

Table 4. Relative body weights and head lengths of seven young wombats (aged after Green & Rainbird, 1987) from Flinders Island and "Bel Respiro", Northern Tasmania (in parenthesis) to demonstrate the different growth rates of the two subspecies during their middle and late pouch life.

CONSERVATION

Flinders Island is naturally endowed with a beautiful landscape, a significant proportion of which is in State Reserves or is unsuitable for agricultural development by present methods. Land clearing and the establishment of introduced pastures has been mostly of a patchwork nature in areas adjoining sclerophyll forest. As such it has provided an enhanced food supply for grazing marsupials while still retaining good, natural shelter. Over the last 25 years this has resulted in a great increase in the numbers of wombats, larger macropods and Cape Barren Goose *Cereopsis novaehollandiae*, to an extent where they have created a management problem. Under present management practice there appears to be no threat to the Flinders Island wombat and the population is probably larger than it has ever been.

ACKNOWLEDGEMENTS

Grateful acknowledgement is made to Mr. Munnings for providing accommodation and processing facilities and allowing collecting on "Thule" and to Mr. Woods for his permission to collect on "Yirriluka". Mr. Frank Poch and Mr. Derek Smith also provided transport and advice.

Special acknowledgement is made of the assistance of the late Joan von Stieglitz who was a volunteer assistant for the collecting trip to Flinders Island. Her interest, dedication and untiring support on this and numerous other such collecting trips and fauna surveys was always inspirational. She enjoyed a great appreciation of the flora and fauna of Tasmania and contributed greatly to the success of many museum field programmes.

REFERENCES

- DIMMOCK, G.M. 1957. The Soils of Flinders Island.
Tasm. C.S.I.R.O. Soils & Land Use Series, No. 23.
- GREEN, R. H. 1984. The Vegetation, Fauna and Archaeology of Ordnance Point, North-Western Tasmania. *Rec. Queen Vict. Mus.* No. 84: 1-64
- GREEN, R. H. and RAINBIRD, J. L. 1987. The Common Wombat *Vombatus ursinus* (Shaw, 1800) in Northern Tasmania — Part 1. Breeding, Growth and Development. *Rec. Queen Vict. Mus.* No. 91: 1—19
- HOPE, J. H. 1969. *Biogeography of the Mammals on the island of Bass Strait with an account of variation in the Genus Potorous*. Ph.D. Thesis, Dept: of Zoology and Comparative Physiology, Monash University.
- McILROY, J. C. 1983. "Wombats" in *Complete Book of Australian Mammals*, pp116-122. Ed. Ronald Strahan, Sydney, Angus and Robertson.
- McLAREN, William D. 1966. The Flinders Island Wombat. *Wildlife Aust.*, 3: 110-113.
- SPENCER, Baldwin and KERSHAW, J. A. 1910. The existing species of the Genus *Phascolomys*. *Mem. Nat. Mus. Melb.*, 3: 37-64.

